

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Ernst Reder et al.

Examiner: Benjamin M. Kurtz

Serial No: 10/520,733

Group Art Unit: 1723

Filed: January 10, 2005

Date: October 18, 2010

For: **FILTER CARTRIDGE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF ELECTRONIC FILING

Sir,

The undersigned hereby certifies that the attached **SUBMISSION OF APPEAL BRIEF AND APPEAL BRIEF** was electronically filed with the Commissioner for Patents, Alexandria, VA 22313 on **October 18, 2010**. Thus, timely response has been made to the outstanding Office Action prior to expiration of the shortened statutory period for the same ending **10/19/10**.

The Commissioner is hereby authorized to charge any fees which might be required or credit any overpayment of fees with regard to the attached document(s) to Account No. **08-3150**.

Respectfully submitted,

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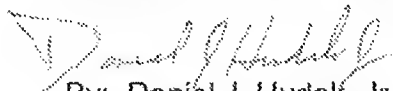
**SUBMISSION OF APPEAL BRIEF**

Sir:

Further to our request for Reinstatement of Appeal filed August 19, 2010 in the United States Patent and Trademark Office, Appellants hereby submit an Appeal Brief in accordance with 37 CFR § 41.37. As indicated in MPEP 1204.01, the previously paid Appeal Brief fee of \$510.00 paid on June 13, 2008 will be applied to this Appeal as a final Board decision has not been made on the prior Appeal. Therefore, as the fee is now \$540.00 authorization to charge Deposit Account 08-3150 in the amount of \$30.00 is provided to cover the difference.

Respectfully submitted,

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**BRIEF FOR APPELLANTS**

Appellants have appealed the Final Rejection of June 7, 2010. Please consider this Appeal Brief filed in accordance with 37 CFR § 41.37.

**REAL PARTY IN INTEREST**

By virtue of an Assignment dated December 21, 2004, by the named inventors, the real party in interest is BRITA GmbH, having a business address of Heinrich-Hertz-Strasse 4, Taunusstein, Germany 65232. The Assignment has been recorded in the U.S. Patent and Trademark Office on January 10, 2005 at Reel 017193 and Frame 0215.

**RELATED APPEALS AND INTERFERENCES**

There are no other appeals, interferences or judicial proceedings known to the Appellants, Appellants' legal representative or Assignee which will affect or have bearing on the Board's decision concerning this appeal.

**STATUS OF CLAIMS**

Claims 1-10 and 15-28 are pending in the application. Claims 11-14 and 29 have been cancelled. Claims 1-10, 15-19, 21 and 25-28 have been rejected. Claims 20, 23 and 24 have been allowed. Claim 22 has been objected to, but would be allowable if

rewritten in independent form and to include all the limitations of the base claim and any intervening claims. Rejected claims 1-10, 15-19, 21, 25-28 are being appealed.

#### **STATUS OF AMENDMENTS**

Appellants' Amendment "K" filed April 29, 2010 filed prior to the Final Office Action was acknowledged in the Final Office Action mailed June 7, 2010. There have been no amendments filed after the Final Rejection.

#### **SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 claims a filter cartridge 1, see Fig. 1, with a filter material comprising a cartridge container with a bottom wall 2 and a peripheral wall 3 and a lid 10 which durably shuts the cartridge container, see page 1, lines 3-6. The lid is comprised of a lid bottom and a strip-shaped lateral wall, see page 1, line 5 and Figs. 1, 2a, 2b and 3 wherein reference number 11 designates lid bottom and reference number 16 indicates the lateral wall. The lateral wall has a length measured parallel to the peripheral wall, see page 9, lines 9-10, and a linear vertical cross-section, as shown in at least Figs. 2a, 2b and 4, along the entire length of the lateral wall. The lateral wall is fitted at the inner side of the peripheral wall, see page 14, lines 7-8 and Figs. 1, 2a, 2b, 3 and 4. The lateral wall is in contact with the peripheral wall along the entire length of the lateral wall, as clearly illustrated in Figs. 2a, 2b, 3 and 4 as well as last full amended paragraph on page 11. The lid bottom merges with the lateral wall in the direction of the peripheral wall along a first end of an inward curved edge section 14, see page 4, lines 1-4, page 8, line 14, and Figs. 1, 2a, 2b, 3 and 4. The first end of the curved edge section and the lateral wall join in a common wall section 15, tapering inwards, in a forming region, see page 4, lines 3-4, and Figs. 1, 2a, 2b, 3 and 4. A lower end 18 of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, see page 4, lines 5-12 and Figs. 1, 2a, 2b and 4. The lateral wall has an upper wall section 17, see page 9, lines 1-10, and Figs. 2a, 2b and 4 which is connected to and extends upward from the common wall section that is parallel to the common wall section lower end and the cartridge container peripheral wall adjacent thereto, see page 7, lines 11-18, page 9, lines 8-10, and Figs. 2a, 2b and 4. Glue or a weld connecting at least one section of the common wall section to the peripheral wall was disclosed in original claims 13 and 14 as well as page 7, second full paragraph. The curved edge

section having a second end that merges into an essentially horizontal lid bottom middle section is disclosed on at least page 5, last full paragraph, page 8, last full paragraph and page 9, first and last full paragraphs.

Independent claim 25 claims a filter cartridge 1, see Fig. 1, with a filter material comprising a cartridge container with a bottom wall 2 and a peripheral wall 3 and a lid 10 which durably shuts the cartridge container, see page 1, lines 3-6. The lid is comprised of a lid bottom and a strip-shaped lateral wall, see page 1, line 5 and Figs. 1, 2a, 2b and 3 wherein reference number 11 designates lid bottom and reference number 16 indicates the lateral wall. The lateral wall has a length measured parallel to the peripheral wall, see page 9, lines 9-10, and a linear vertical cross-section as shown in at least Figs. 2a, 2b and 4 along the entire length of the lateral wall, see also page 14, lines 6-7. The lateral wall is fitted at the inner side of the peripheral wall, see page 14, lines 7-8, and Figs. 1, 2a, 2b, 3 and 4. The lateral wall is in contact with the peripheral wall along the entire length of the lateral wall, as clearly illustrated in Figs. 2a, 2b, 3 and 4 as well as last full amended paragraph on page 11. The lid bottom merges with the lateral wall in the direction of the peripheral wall along a first end of an inward curved edge section 14, see page 4, lines 1-4, page 8, line 14, the first full paragraph on page 9, and Figs. 1, 2a, 2b, 3 and 4. The first end of the curved edge section and the lateral wall join in a common wall section 15, tapering inwards, in a forming region, see page 4, lines 3-4, and Figs. 1, 2a, 2b, 3 and 4. A lower end 18 of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, see page 4, lines 5-12 and Figs. 1, 2a, 2b and 4. The lateral wall has an upper wall section 17, see page 9, lines 1-10, and Figs. 2a, 2b and 4 which is connected to and extends upward from the common wall section that is parallel to the common wall section lower end and the cartridge container peripheral wall adjacent thereto, see page 7, lines 11-18, page 9, lines 8-10, and Figs. 2a, 2b and 4. In vertical cross-section, the lateral wall is a linear tangent line, see page 5, lines 1-4 and Figs. 2a, 2b and 4. The lateral wall is connected to the curved edge section tangentially, see page 5, lines 1-7 and Figs. 2a, 2b and 4. Glue or a weld connecting at least one section of the common wall section to the peripheral wall was disclosed in original claims 13 and 14 as well as page 7, second full paragraph. The curved edge section having a second end that merges into an

essentially horizontal lid bottom middle section is disclosed on at least page 5, last full paragraph, page 8, last full paragraph and page 9, first and last full paragraphs.

Independent claim 26 claims a filter cartridge 1, see Fig. 1, with a filter material comprising a cartridge container with a bottom wall 2 and a peripheral wall 3 and a lid 10 which shuts the cartridge container, see page 1, lines 3-6. The lid is comprised of a lid bottom and a strip-shaped lateral wall, see page 1, line 5 and Figs. 1, 2a, 2b and 3 wherein reference number 11 designates lid bottom and reference number 16 indicates the lateral wall. The lateral wall has a length measured parallel to the peripheral wall, see page 9, lines 9-10, and a linear vertical cross-section as shown in at least Figs. 2a, 2b and 4 along the entire length of the lateral wall. The lateral wall is fitted at the inner side of the peripheral wall, see page 14, lines 7-8, and Figs. 1, 2a, 2b, 3 and 4. The lateral wall is in contact with the peripheral wall along the entire length of the lateral wall, as clearly illustrated in Figs. 2a, 2b, 3 and 4 as well as last full amended paragraph on page 11. The lid bottom merges with the lateral wall in the direction of the peripheral wall along an inward curved edge section 14, see page 4, lines 1-4, page 8, line 14, and Figs. 1, 2a, 2b, 3 and 4. The curved edge section and the lateral wall join in a common wall section 15, tapering inwards, in a forming region, see page 4, lines 3-4, and Figs. 1, 2a, 2b, 3 and 4. A lower end 18 of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, see page 4, lines 5-12 and Figs. 1, 2a, 2b and 4. The lateral wall has an upper wall section 17, see page 9, lines 1-10, and Figs. 2a, 2b and 4 which is connected to and extends upward from the common wall section that is parallel to the common wall section lower end and the cartridge container peripheral wall adjacent thereto, see page 7, lines 11-18, page 9, lines 8-10, and Figs. 2a, 2b and 4. The curved edge section consists of a single curved portion having a radius of curvature  $R$ , see page 9, third full paragraph which states that the curved section 14 is characterized by the curvature radius  $R$  and Figs. 2a, 2b, 3 and 4. Glue or a weld connecting at least one section of the common wall section to the peripheral wall was disclosed in original claims 13 and 14 as well as page 7, second full paragraph. The curved edge section having an essentially vertical section at one end in an area of the common wall and immediately merges into an essentially horizontal lid bottom middle section at a second end is disclosed on at least page 5, last full paragraph, page

8, last full paragraph and page 9, first and last full paragraphs, see also former claim 29 wherein the curved edge section immediately merges into an essentially horizontal lid between middle section at the second end.

#### GROUND OF REJECTION TO BE REVIEWED ON APPEAL

At issue is whether claims 1-8, 16-18 and 25-29 (sic-should be 25-28 as claim 29 has been cancelled) are unpatentable according to 35 U.S.C. § 103(a) over Vannoy, U.S. Patent No. 5,830,348 in view of Verlinden, U.S. Patent No. 3,958,904 and Wagner, U.S. Patent No. 1,371,530.

Further at issue is whether claims 9, 10, 19 and 21 are unpatentable according to 35 U.S.C. §103(a) over Vannoy, U.S. Patent No. 5,830,348, Verlinden, U.S. Patent No. 3,958,904 and Wagner, U.S. Patent No. 1,371,530 and further in view of Stifano, U.S. Patent No. 4,109,820.

Additionally at issue is whether claim 15 is unpatentable according to 35 U.S.C. §103(a) over Vannoy, U.S. Patent No. 5,830,348, in view of in view of Verlinden, U.S. Patent No. 3,958,904, Wagner, U.S. Patent No. 1,371,530 and Gizowski, U.S. Publication No. 2001/0000894 A1.

#### ARGUMENT

##### Arguments Relating to 35 U.S.C. §103(a) Rejections in View of Vannoy, U.S. Patent No. 5,830,348 in view of Verlinden, U.S. Patent No. 3,958,904 and Wagner, U.S. Patent No. 1,371,520.

##### Argument Relating to Claim 1

On page 3 of the June 7, 2010 Office Action under section 1, the Examiner states that Vannoy does not teach i) the lid bottom merging with the lateral wall in the direction of the peripheral wall along a first end of an inward curved section, ii) tapering inwards in a forming region or that iii) glue or a weld connects at least one section of the common wall section to the peripheral wall. (numerations added).

It is respectfully submitted that the Examiner has not presented a *prima facie* case of obviousness. It is respectfully submitted that the description of the features lacking in Vannoy is not complete. Vannoy does not disclose a common wall section

that is tapering inwards in a forming region. Appellants' lid bottom and lateral wall are connected by relatively short curved section as claimed. According to Vannoy there is no forming region and no common wall section.

As there is no common wall section in Vannoy, but instead lid bottom 38 connected to the lateral wall adjacent to body 14 by a short horizontal section, it is unclear how one of ordinary skill in the art would be led to combine the scope and content of Vannoy with that of the Verlinden reference. The scope and content of Verlinden teaches a lid generally 3, 23 having a lid bottom comprising "a generally bowl-shaped end wall portion 13a", see column 3, lines 22-23. Accordingly, the Verlinden reference lacks the claimed essentially horizontal lid bottom middle section.

It is respectfully submitted that the claimed combination features amount to more than a predictable result in view of the combination of Vannoy and Verlinden. There is no scope and content within Vannoy or Verlinden that would teach one of ordinary skill in the art to arrive at the claimed invention, absent impermissible hindsight picking and choosing of the isolated features from the cited references.

Moreover, independent claim 1 further claims that the lateral wall has a linear vertical cross-section along the entire length of the lateral wall. On page 2 of the Office Action, the Examiner states that Vannoy teaches this feature. It is respectfully submitted that Vannoy actually teaches away from the lateral wall having a linear vertical cross-section along the entire length of the lateral wall, please see Fig. 1 wherein the lateral wall in contact with body 14 has an upper end that is "U" shaped and curves around the upper end of the body 14.

Appellants' claimed filter cartridge is specifically designed to withstand the force and pressure conditions a filter cartridge can be subjected to. The specifically claimed features act together to reduce pressures on the lid, such as described on pages 4 and 10 of the specification.

As illustrated in Fig. 2a, the force generated by the internal pressure is denoted, for example, by arrow F. It can be seen that the inside pressure presses on the common wall section 15 unless it exerts an additional sealing force, especially in the weld section 19. Fig. 2b corresponds to Fig. 2a, whereby additionally, the lid, bulged by the force  $F_D$  acting on the inside, is shown with broken lines. The middle part 12 and



the curved edge section 14 are pressed upward and assume the positions 12', 14', which lead to the tensile forces  $F_Z$ , who have their main component  $F_{ZH}$  in the common wall section 15 parallel to the lateral wall 16. Due to this, only a small, inward oriented force acts on the welded section 19, which reduces the risk of shear fracture under the action of pressure impacts in the predamaged critical area of the peripheral wall 3 at the lower ends of the welding joints.

Another advantage of the curved edge section is that the forces acting on the lid due to the internal pressure cannot only be weakened in the edge area, but can also be used for generating a sealing force. Due to the fact that the lateral wall and the curved edge section of the lid bottom form a common wall section in the interior of the filter cartridge, the force component  $F$ , acting due to the internal pressure on the common wall section, is radially outward oriented so that the common wall section is pressed against the peripheral wall of the cartridge container. Thereby, it is of advantage if the common wall section forms the lower wall section of the lateral wall.

On the whole, the load is clearly reduced in the critical area of the peripheral wall at the lower end of the fastening area, so that the leakages are effectively prevented in that area and the service life of the filter cartridge is limited mainly due to the consumption of the filter material.

The Examiner states that Wagner teaches the lid bottom merging with the lateral wall in the direction of the peripheral wall along a first end of the inward curved edge section and merges at a second end into an essentially horizontal lid bottom middle section in Fig. 1 and page 1, line 105.

The Wagner reference discloses on page 1, lines 10-14, a receptacle which includes ice cream cans or containers for milk and such liquids, in which it is highly essential that absolute cleanliness be maintained. Such containers are not exposed to an internal pressure like the claimed filter cartridge of the present invention, and it is respectfully submitted that one in the ordinary skill in the art would not be led in the direction taken by the Appellants nor led to consider any teachings disclosed by Wagner.

As disclosed on page 1, lines 15-21, Wagner teaches an object of his invention is to provide a sanitary can or receptacle in which the bottom or wall end is so joined to

the side wall as to avoid any abrupt angles or corners which might afford crevices in which the fluid contained therein may collect or be secreted. The bottom or end wall 2 of Wagner includes a feather edge 5, see Fig. 2, that extends laterally beyond flange 3 and is arranged to be turned backwardly as shown, for example, in Fig. 4.

After insertion of the bottom annular wall 2, feather edge 5 is turned backwardly and located between the outer surface of flange 3 and side wall 1, see lines 82-95, and as best shown in Fig. 4 forms a filler between said flange and the inner surface of the walls of the shell 1.

As flange 3 corresponds to the claimed lateral wall 16, Fig. 4 shows that flange 3 of Wagner is not in contact with side wall 1 "along the entire length of the lateral wall" as claimed in claim 1.

Moreover, as illustrated in Fig. 4 of Wagner feather edge 5 due to being turned backwardly, see page 1, lines 82-95, tapers outwards towards the outside of the container instead of tapering inwards as claimed in independent claim 1.

It is an essential feature that the common wall section as claimed extends inwardly because glue or a weld connects the common wall section to the peripheral wall. Only an inwardly extending common wall enables the Appellants to utilize the internal pressure acting on the common wall section and inserting an additional sealing force, see arrow F in Fig. 2a, as well as page 10 of the application. One of ordinary skill in the art would be led in an opposite direction in view of the scope and content of Wagner.

To the contrary, feather edge 5 of Wagner is located turned backwardly behind the upper end of the curved part of bottom wall 2 so that a force cannot act perpendicularly on the feathered edge. Wagner, therefore, is similar to reference DE 19958649.7 cited in the background of the invention wherein the force of internal pressure leads to the loosening of the lateral wall and to a formation of cracks in the connecting region. In view of the scope and content of the references, it is respectfully submitted that one of ordinary skill in the art would not be led to arrive at the present invention as claimed.

### Arguments Relating to Claim 2

Dependent claim 2 claims that in vertical cross section the lateral wall is a linear tangent line, and wherein the lateral wall is connected with the curved edge section tangentially. In geometry, the tangent line to a curve at a given point is the straight line that just touches the curve at that point. As it passes through the point where the tangent line and the curve meet, or the point of tangency, the tangent line is going in the same direction as the curve, and in this sense, it is the best straight-line approximation to the curve at that point. These claimed features are clearly shown in at least Fig. 2a and Fig. 4, wherein the lateral wall is linear and the curved edge section connects with the curved end section tangentially.

The Examiner states that Verlinden teaches in vertical cross section that the lateral wall is connected to the curved edge section tangentially in Fig. 1.

While Verlinden teaches a peripheral wall 13 that is linear, the bowl-shaped end wall shaped portion 13a does not pass through the same point with the same direction. More specifically, the curvature of the bowl-shaped end wall portion 13a is not steep enough. Thus, extending the section 13a, the same would pass through peripheral wall 13 as the curvature of the wall portion 13a is too shallow.

Considering the scope and content of the cited references, it is unclear what a person of ordinary skill in the art would have known or could have done when provided with the combination of references. As pointed out previously, the primary Vannoy reference does not teach that the lid bottom merges with the lateral wall in the direction of the peripheral wall along the first end of an inward curved section, tapering inward, in a forming region. The Verlinden reference does not teach the claimed tangential connection between the lateral wall and the curved edge section. Moreover, Wagner also lacks a tangential connection as lid bottom 2 and lateral wall 3 do not pass through the same point with the same direction as required by the definition of a tangent. Extending the curved edge section of lid bottom 2 of Wagner, the same would pass through the lateral wall 3 as the curvature of the curved edge section is too shallow.

It is respectfully submitted that one of ordinary skill in the art would not arrive at the invention set forth in dependent claim 2 even if the scope and content of the references were combined.

### **Arguments Relating to Claims 5 and 17**

Said claims state that the curved edge section, see reference number 14, especially in Fig. 2a, has a mean edge of radius of curvature  $R$ , which satisfies  $R \geq 5 \times S$ , wherein  $S$  indicates the thickness of the peripheral wall of the cartridge container. The radius of curvature of a curve is the radius of a circle the curvature of which is equal to that of the given curve at that point.

The Verlinden reference does not present any relative dimensions regarding the radius of curvature. There is no recognition of the importance of radius of curvature set forth in Verlinden in comparison to the curved peripheral wall thickness within the scope and content of the Verlinden reference.

It is unclear from the teachings of the Verlinden reference how a person of ordinary skill in the art would have understood the prior art Verlinden teachings or what a person of ordinary skill in the art would have known or could have done in view of the teachings set forth therein to arrive at Appellants' claimed limitations and the claimed radius of curvature of the claimed cartridge.

### **Arguments Relating to Claim 6**

Claim 6 defines that the curved edge section spans an angle  $\alpha$  from  $80^\circ$  to  $100^\circ$ . The Examiner states that Verlinden teaches the curved edge section spanning an angle of  $90^\circ$  in Fig. 1. It is respectfully submitted that Fig. 1 of Verlinden includes a pair of curved sections arranged on the lid with curved edge section 13a having an angle spanning less than  $80^\circ$ . The range appears to be about  $67^\circ$ . Accordingly, in view of the scope and content of Verlinden, one of ordinary skill in the art would not arrive at the invention set forth in dependent claim 6.

### **Arguments Relating to Claim 25**

The Examiner states on page 6 that Vannoy does not teach the lid bottom merging with the lateral wall in the direction of the peripheral wall along a first end of an inward curved section, tapering inwards in a forming region or that glue or a weld connects at least one section of the common wall section to the peripheral wall.

It is respectfully submitted that the Examiner has not presented a *prima facie* case of obviousness. It is respectfully submitted that the description of the features lacking in Vannoy is not complete. Vannoy does not disclose a common wall section that is tapering inwards in a forming region. Appellants' lid bottom and lateral wall are connected by relatively short curved section as claimed. According to Vannoy there is no forming region and no common wall section.

As there is no common wall section in Vannoy, but instead lid bottom 38 connected to the lateral wall adjacent to body 14 by a short horizontal section, it is unclear how one of ordinary skill in the art would be led to combine the scope and content of Vannoy with that of the Verlinden reference. The scope and content of Verlinden teaches a lid generally 3, 23 having a lid bottom comprising "a generally bowl-shaped end wall portion 13a", see column 3, lines 22-23. Accordingly, the Verlinden reference lacks the claimed essentially horizontal lid bottom middle section.

It is respectfully submitted that the claimed combination features amount to more than a predictable result in view of the combination of Vannoy and Verlinden. There is no scope and content within Vannoy or Verlinden that would teach one of ordinary skill in the art to arrive at the claimed invention, absent impermissible hindsight picking and choosing of the isolated features from the cited references.

Moreover, independent claim 25 further claims that the lateral wall has a linear vertical cross-section along the entire length of the lateral wall. On page 2 of the Office Action, the Examiner states that Vannoy teaches this feature. It is respectfully submitted that Vannoy actually teaches away from the lateral wall having a linear vertical cross-section along the entire length of the lateral wall, see Fig. 1 wherein the lateral wall in contact with body 14 has an upper end that is "U" shaped.

The Examiner states that Wagner teaches the lid bottom merging with the lateral wall in the direction of the peripheral wall along a first end of the inward curved edge section and merges at a second end into an essentially horizontal lid bottom middle section in Fig. 1 and page 1, line 105.

After insertion of the bottom annular wall 2, feather edge 5 is turned backwardly and located between the outer surface of flange 3 and side wall 1, see lines 82-95, and

as best shown in Fig. 4 forms a filler between said flange and the inner surface of the walls of the shell 1.

As flange 3 corresponds to the claimed lateral wall 16, Fig. 4 shows that flange 3 of Wagner is not in contact with side wall 1 "along the entire length of the lateral wall" as claimed in claim 25.

Moreover, as illustrated in Fig. 4 of Wagner feather edge 5 due to being turned backwardly, see page 1, lines 82-95, tapers outwards towards the outside of the container instead of tapering inwards as claimed in independent claim 25.

It is an essential feature that the common wall section as claimed extends inwardly because glue or a weld connects the common wall section to the peripheral wall. Only an inwardly extending common wall enables the Appellants to utilize the internal pressure acting on the common wall section and inserting an additional sealing force, see arrow F in Fig. 2a, as well as page 10 of the application. One of ordinary skill in the art would be led in an opposite direction in view of the scope and content of Wagner.

To the contrary, feather edge 5 of Wagner is located turned backwardly behind the upper end of the curved part of bottom wall 2 so that a force cannot act perpendicularly on the feathered edge.

Moreover claim 25 claims that in vertical cross section the lateral wall is a linear tangent line, and wherein the lateral wall is connected with the curved edge section tangentially. Geometrically, a linear surface or line is tangent to a curve at some point, if both the line or surface in the curve pass through the same point with the same direction. These claimed features are clearly shown in at least Fig. 2a and Fig. 4, wherein the lateral wall is linear and the curved edge section connects with the curved end section tangentially.

The Examiner states that Verlinden teaches in vertical cross section that the lateral wall is connected to the curved edge section tangentially in Fig. 1.

While Verlinden teaches a peripheral wall 13 that is linear, the bowl-shaped end wall shaped portion 13a does not pass through the same point with the same direction. More specifically, the curvature of the bowl-shaped end wall portion 13a is not steep

enough. Thus, extending the section 13a, the same would pass through peripheral wall 13 as the curvature of the wall portion 13a is too shallow.

Considering the scope and content of the cited references, it is unclear what a person of ordinary skill in the art would have known or could have done when provided with the combination of references. As pointed out previously, the primary Vannoy reference does not teach that the lid bottom merges with the lateral wall in the direction of the peripheral wall along the first end of an inward curved section, tapering inward, in a forming region. The Verlinden reference does not teach the claimed tangential connection between the lateral wall and the curved edge section. Moreover, Wagner also lacks a tangential connection as lid bottom 2 and lateral wall 3 do not pass through the same point with the same direction as required by the definition of a tangent. Extending the curved edge section of lid bottom 2 of Wagner, the same would pass through the lateral wall 3 as the curvature of the curved edge section is too shallow.

It is respectfully submitted that one of ordinary skill in the art would not arrive at the invention set forth in claim 25 even if the scope and content of the references were combined.

#### **Arguments Relating to Claim 26**

The Examiner states on page 9 that Vannoy does not teach the lid bottom merging with the lateral wall in the direction of the peripheral wall along a first end of an inward curved section, tapering inwards in a forming region or that glue or a weld connects at least one section of the common wall section to the peripheral wall.

It is respectfully submitted that the Examiner has not presented a *prima facie* case of obviousness. It is respectfully submitted that the description of the features lacking in Vannoy is not complete. Vannoy does not disclose a common wall section that is tapering inwards in a forming region. Appellants' lid bottom and lateral wall are connected by relatively short curved section as claimed. According to Vannoy there is no forming region and no common wall section.

As there is no common wall section in Vannoy, but instead lid bottom 38 connected to the lateral wall adjacent to body 14 by a short horizontal section, it is unclear how one of ordinary skill in the art would be led to combine the scope and



content of Vannoy with that of the Verlinden reference. The scope and content of Verlinden teaches a lid generally 3, 23 having a lid bottom comprising "a generally bowl-shaped end wall portion 13a", see column 3, lines 22-23. Accordingly, the Verlinden reference lacks the claimed essentially horizontal lid bottom middle section.

It is respectfully submitted that the claimed combination features amount to more than a predictable result in view of the combination of Vannoy and Verlinden. There is no scope and content within Vannoy or Verlinden that would teach one of ordinary skill in the art to arrive at the claimed invention, absent impermissible hindsight picking and choosing of the isolated features from the cited references.

Moreover, independent claim 1 further claims that the lateral wall has a linear vertical cross-section along the entire length of the lateral wall. On page 2 of the Office Action, the Examiner states that Vannoy teaches this feature. It is respectfully submitted that Vannoy actually teaches away from the lateral wall having a linear vertical cross-section along the entire length of the lateral wall, see Fig. 1 wherein the lateral wall in contact with body 14 has an upper end that is "U" shaped.

The Examiner states that Wagner teaches the lid bottom merging with the lateral wall in the direction of the peripheral wall along a first end of the inward curved edge section and merges at a second end into an essentially horizontal lid bottom middle section in Fig. 1 and page 1, line 105.

After insertion of the bottom annular wall 2, feather edge 5 is turned backwardly and located between the outer surface of flange 3 and side wall 1, see lines 82-95, and as best shown in Fig. 4 forms a filler between said flange and the inner surface of the walls of the shell 1.

As flange 3 corresponds to the claimed lateral wall 16, Fig. 4 shows that flange 3 of Wagner is not in contact with side wall 1 "along the entire length of the lateral wall" as claimed in claim 1.

Moreover, as illustrated in Fig. 4 of Wagner feather edge 5 due to being turned backwardly, see page 1, lines 82-95, tapers outwards towards the outside of the container instead of tapering inwards as claimed in independent claim 1.

It is an essential feature that the common wall section as claimed extends inwardly because glue or a weld connects the common wall section to the peripheral



wall. Only an inwardly extending common wall enables the Appellants to utilize the internal pressure acting on the common wall section and inserting an additional sealing force, see arrow F in Fig. 2a, as well as page 10 of the application. One of ordinary skill in the art would be led in an opposite direction in view of the scope and content of Wagner.

To the contrary, feather edge 5 of Wagner is located turned backwardly behind the upper end of the curved part of bottom wall 2 so that a force cannot act perpendicularly on the feathered edge.

Claim 26 further states that the curved edge section, see reference number 14, especially in Fig. 2a, consists of a single curved edge portion having a radius of curvature R. The radius of curvature of a curve is the radius of a circle the curvature of which is equal to that of the given curve at that point. It is respectfully submitted that the curvature of the generally bowl shaped end wall portion 13a of Verlinden changes along its length. Therefore, the cited references cannot include the scope and content that renders the limitations set forth in claim 26 obvious. Moreover, the Verlinden reference does not present any relative dimensions regarding the radius of curvature. There is no recognition of the importance of radius of curvature set forth in Verlinden in comparison to the curved peripheral wall thickness within the scope and content of the Verlinden reference.

It is unclear from the teachings of the Verlinden reference how a person of ordinary skill in the art would have understood the prior art Verlinden teachings or what a person of ordinary skill in the art would have known or could have done in view of the teachings set forth therein to arrive at Appellants' claimed limitations and the claimed radius of curvature of the claimed cartridge.

Arguments Relating to 35 U.S.C. §103(a) Rejections based on Vannoy, U.S. Patent 5,830,348, Verlinden, U.S. Patent 3,958,904, and Wagner, U.S. Patent 1,371,530, further in view of Stifano, U.S. Patent 4,109,820

Arguments Relating to Claims 9 and 19

Claims 9 and 19 claim a back-up ring arranged on the lid, wherein the back-up ring has an inner wall comprising a ring opening, an outer lateral wall in contact with the lid lateral wall, and a plurality of radial reinforcing ribs connected to and extending between the back-up ring inner wall and the outer wall.

As indicated in the specification on at least page 6, second full paragraph, by providing a back-up ring, the cartridge lid can be designed with a thinner wall because pressure exerted on the inside of the cartridge lid is practically transmitted through the back-up ring to the lid of the outside container. Since the back-up ring is reusable, but the lid as well as the filter cartridge must be disposed of later as waste, costs for the lid material can thus be saved.

Fig. 3 clearly shows back-up ring 20 arranged on the lid, with the back-up ring having ring opening 27 and outer lateral wall 26 with radial reinforcing ribs 21 connected to and extending therebetween.

The Examiner states that Vannoy and Verlinden teach the filter cartridge of claim 1 or 8, but do not teach a back-up ring arranged on the lid. The Examiner states that Stifano teaches a cartridge having a lid further comprising a back-up ring arranged on a lid in column 3, lines 32-34.

It is respectfully submitted that there is no scope and content nor motivation to utilize a back-up ring in conjunction with any of Vannoy, Verlinden and Wagner. Moreover, it is respectfully submitted that none of the cited references teach a back-up ring as claimed. Stifano teaches a single lid or closure insert 10 comprising an inverted annular flange 13 and a plurality of support members 14 in all but a central portion of the flange, see column 2, line 50 through column 3, line 2. It is further defined in column 3, lines 29-33, a plurality of support members 14 are preferably integrally formed with the face and flange. Moreover, Appellants' claimed back-up ring, which is separate and distinct from the claimed lid, is claimed to have an inner wall comprising a

ring opening and an outer lateral wall in contact with the lid lateral wall. None of the cited references teach any such structure. Moreover, dependent claims 9 and 19 claim that a plurality of radial reinforcing ribs are connected to and extend between the back-up ring inner wall and back-up ring outer lateral wall. As illustrated in Fig. 4, especially Fig. 5, the Stifano reinforcing ribs do not connect to and extend between both a back-up ring inner wall and a back-up ring outer wall, but instead extend from the Stifano lid outer wall 22 and end on the underside 21 of the lid, and do not contact the ring opening 25. It is respectfully submitted that one of ordinary skill in the art would not arrive at the claimed invention even if in possession of the cited references.

The claimed back-up ring is reusable, but the lid as well as the filter cartridge must be disposed of after use. One of ordinary skill in the art does not learn teaching of a reusable back-up ring from the combination of cited references.

#### **Arguments Relating to Claim 10**

Claim 10 depends upon claim 9 and claims that a bottom contour of the back-up ring, see for example 22, 23 and 24 in Fig. 3, is connected to the back-up ring inner wall and the back-up ring outer lateral wall, and is built such that the bottom contour is complementary to an outer contour of the lid.

The cited references lack the back-up ring and there is no scope and content within Fig. 6 of Sifano cited by the Examiner regarding Appellants' claimed feature. To the contrary, Fig. 6, as described by Stifano in column 2, lines 41-46, is a sectional side view of a container closed in accordance with the invention, the top closure being the embodiment depicted in Fig. 5 and the bottom closure being the embodiment depicted in Fig. 2. None of said figures contains a back-up ring having a bottom contour connected to a back-up ring inner wall and a back-up ring outer lateral wall, with the bottom contour being complementary to an outer contour of the lid.

#### **Arguments Relating to Claim 21**

Claim 21 depends upon claim 9 and defines that the lid includes a connecting tube at its center that is connected to the essentially horizontal lid bottom middle section and wherein the connecting tube is accessible through the ring opening of the back-up ring.

It is respectfully submitted that the Examiner's rejection with respect to Stifano is inconsistent with the rejection of dependent claim 9. Referring to claim 9, the Examiner states that reference number 25 refers to the inner wall comprising the ring opening. However, referring to claim 21 the Examiner states the lid includes a connecting tube 25 accessible through the ring opening of the back-up ring. Appellants point out that, as defined in column 3, lines 61 and 62, Stifano states that the insert includes a sealable filling and dispensing means 25, which can only be compared to Appellants' claimed connecting tube of the lid as illustrated in Figs. 5 and 6 which depict the top view and sectional side view respectively. Stifano does not include a scope and content that discloses a back-up ring having an inner wall comprising a ring opening with a plurality of radially reinforcing ribs connected to and extending between the back-up ring inner wall and back-up ring outer lateral wall, wherein as claimed in dependent claim 21 that the connecting tube is accessible through the ring opening of the back-up ring.

**Arguments Relating to 35 U.S.C. §103(a) rejection based on Vannoy, U.S. Patent 5,830,348, in view of Verlinden, U.S. Patent 3,958,904, and Wagner, U.S. Patent 1,371,530, and Gizowski, U.S. Publication 2001/0000894**

**Arguments Relating to Claim 15**

Claim 15 defines that the material of the cartridge container is transparent through laser light and at least the material of the lateral wall of the lid is absorptive to laser light.

The Examiner states that Vannoy teaches a weld wherein a weld is a laser weld, but does not teach the material of the cartridge being transparent to laser light, but that Gizowski teaches the material transparent to laser light and at least the material of the lateral wall of the lid is absorptive to laser light in paragraph 3 of the Office Action.

It is respectfully submitted that the Examiner has picked and chosen isolated features in the prior art and combined the same in order to attempt to arrive at Appellants' invention. There is no scope or content in the prior art references that would lead one of ordinary skill in the art to combine the references to arrive at the claimed invention.

### Summary

For at least the reasons stated hereinabove, it is respectfully submitted that the currently pending rejected claims cannot be rendered obvious in view of the indicated cited references. It is respectfully submitted that the Examiner has not presented a *prima facie* case of obviousness.

## Claims Appendix

1. (Previously Presented) A filter cartridge with a filter material, comprising: a cartridge container with a bottom wall and a peripheral wall and a lid, which shuts the cartridge container, comprised of a lid bottom and a strip-shaped lateral wall having a length measured parallel to the peripheral wall and having a linear vertical cross section along the entire length of the lateral wall, wherein the lateral wall is fitted at the inner side of the peripheral wall and the lateral wall is in contact with the peripheral wall along the entire length of the lateral wall, wherein the lid bottom merges with the lateral wall in the direction of the peripheral wall along a first end of an inward curved edge section, wherein the first end of the curved edge section and the lateral wall join in a common wall section, tapering inwards, in a forming region, wherein a lower end of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, and wherein the lateral wall has an upper wall section which is connected to and extends upward from the common wall section that is parallel to the common wall section lower end and cartridge container peripheral wall adjacent thereto, wherein glue or a weld connects at least one section of the common wall section to the peripheral wall, and wherein the curved edge section has a second end that merges into an essentially horizontal lid bottom middle section.

2. (Previously Presented) The filter cartridge as claimed in claim 1, wherein in vertical cross section the lateral wall is a linear tangent line, and wherein the lateral wall is connected with the curved edge section tangentially.

3. (Previously Presented) The filter cartridge as claimed in claim 1, wherein the common wall section forms a lower wall section of the lateral wall that includes the lower end.

4. (Previously Presented) The filter cartridge according to claim 1, wherein the curved edge section extends up to the inner end of the strip-shaped lateral wall.

5. (Previously Presented) The filter cartridge according to claim 1, wherein the curved edge section has a mean edge radius of curvature  $R$ , which satisfies  $R \geq 5 \times S$ , wherein  $S$  indicates the thickness of the peripheral wall of the cartridge container.

6. (Previously Presented) The filter cartridge according to claim 1, wherein the curved edge section spans an angle  $\alpha$  from  $80^\circ$  to  $100^\circ$ .

7. (Previously Presented) The filter cartridge according to claim 1, wherein the lateral wall upper wall section extends upward from the common wall section at least up to height of the lid bottom.

8. (Previously Presented) The filter cartridge according to claim 7, wherein the upper wall section of the lateral wall and the curved edge section border on their outer side forming a ring space with a wedge-shaped cross section.

9. (Previously Presented) The filter cartridge according to claim 1, further comprising a back-up ring arranged on the lid, wherein the back-up ring has an inner wall comprising a ring opening, an outer lateral wall in contact with the lid lateral wall, and a plurality of radial reinforcing ribs connected to and extending between the back-up ring inner wall and back-up ring outer lateral wall.

10. (Previously Presented) The filter cartridge according to claim 9, wherein at least a bottom contour of the back-up ring is connected to the back-up ring inner wall and the back-up ring outer lateral wall and is built such that the bottom contour is complementary to an outer contour of the lid.

11-14. (Canceled)

15. (Previously Presented) The filter cartridge according to claim 1, wherein the material of the cartridge container is transparent to laser light and at least the material of the lateral wall of the lid is absorptive to laser light.

16. (Previously Presented) The filter cartridge as claimed in claim 2, wherein the common wall section forms a lower wall section of the lateral wall that includes the lower end.

17. (Previously Presented) The filter cartridge according to claim 16, wherein the curved edge section has a mean edge radius of curvature  $R$ , which satisfies  $R \geq 5 \times S$ , wherein  $S$  indicates the thickness of the peripheral wall of the cartridge container.

18. (Previously Presented) The filter cartridge according to claim 6, wherein the lateral wall upper wall section extends upward from the common wall section at least up to height of the lid bottom.

19. (Previously Presented) The filter cartridge according to claim 8, further comprising a back-up ring arranged on the lid, wherein the back-up ring has an inner wall comprising a ring opening, an outer lateral wall in contact with the lid lateral wall, and a plurality of radial reinforcing ribs connected to and extending between the back-up ring inner wall and back-up ring outer lateral wall.

20. (Previously Presented) The filter cartridge according to claim 24, wherein a welded area derived from a laser connects at least one section of the common wall section to the peripheral wall.

21. (Previously Presented) The filter cartridge according to claim 9, wherein the lid includes a connecting tube at its center that is connected to the essentially horizontal lid bottom middle section, and wherein the connecting tube is accessible through the ring opening of the back-up ring.

22. (Previously Presented) The filter cartridge according to claim 21, wherein the radial reinforcing ribs are connected with each other by a back-up ring bottom extending between the back-up ring inner wall and back-up ring outer lateral wall, and



the filter cartridge further comprising a slit-shaped recess between the back-up ring bottom and a portion of the curved edge section bordering on the common wall section.

23. (Previously Presented) A filter cartridge with a filter material, comprising:  
a cartridge container with a bottom wall and a peripheral wall and a lid, which durably shuts the cartridge container, comprised of a lid bottom and a strip-shaped lateral wall having a linear vertical cross section, with a form matching according to its border, which is fitted at the inner side of the peripheral wall, whereby the lid bottom merges with the lateral wall in the direction of the peripheral wall along an inward curved edge section, whereby the curved edge section and the lateral wall join in a common wall section, tapering inwards, in a forming region, wherein a lower end of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, wherein the lateral wall has an upper wall section which extends upward from the common wall section that is parallel to the common wall section lower end and cartridge container peripheral wall adjacent thereto, a back-up ring arranged on the lid, wherein the back-up ring has an inner wall comprising a ring opening, an outer lateral wall in contact with the lid lateral wall, and a plurality of radial reinforcing ribs extending between the back-up ring inner wall and back-up ring outer lateral wall, wherein at least a bottom contour of the back-up ring is connected to the back-up ring inner wall and the back-up ring outer lateral wall and is built such that the bottom contour is complementary to an outer contour of the lid, wherein the back-up ring does not fill a wedge-shaped ring area between the bottom contour and the lid completely, and wherein the radial reinforcing ribs are connected with each other by a back-up ring bottom contour extending between the back-up ring inner wall and back-up ring outer lateral wall.

24. (Previously Presented) A filter cartridge with a filter material, comprising:  
a cartridge container with a bottom wall and a peripheral wall and a lid, which durably shuts the cartridge container, comprised of a lid bottom and a strip-shaped lateral wall having a linear vertical cross section, with a form matching according to its border, which is fitted at the inner side of the peripheral wall, whereby the lid bottom

merges with the lateral wall in the direction of the peripheral wall along an inward curved edge section, whereby the curved edge section and the lateral wall join in a common wall section, tapering inwards, in a forming region, wherein a lower end of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, and wherein the lateral wall has an upper wall section which extends upward from the common wall section that is parallel to the common wall section lower end and cartridge container peripheral wall adjacent thereto, a back-up ring arranged on the lid, wherein the back-up ring has an inner wall comprising a ring opening, an outer lateral wall in contact with the lid lateral wall, and a plurality of radial reinforcing ribs connected to and extending between the back-up ring inner wall and back-up ring outer lateral wall, and a slit-shaped recess between the back-up ring and a position of the curved edge section bordering on the common wall section.

25. (Previously Presented) A filter cartridge with a filter material, comprising:  
a cartridge container with a bottom wall and a peripheral wall and a lid, which shuts the cartridge container, comprised of a lid bottom and a strip-shaped lateral wall having a length measured parallel to the peripheral wall and having a linear vertical cross section along the entire length of the lateral wall, wherein the lateral wall is fitted at the inner side of the peripheral wall and the lateral wall is in contact with the peripheral wall along the entire length of the lateral wall, wherein the lid bottom merges with the lateral wall in the direction of the peripheral wall along a first end of an inward curved edge section, wherein the first end of the curved edge section and the lateral wall join in a common wall section, tapering inwards, in a forming region, wherein a lower end of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, wherein the lateral wall has an upper wall section which is connected to and extends upward from the common wall section that is parallel to the common wall section lower end and cartridge container peripheral wall adjacent thereto, wherein in the vertical cross-section, the lateral wall is a linear tangent line, and wherein the lateral wall is connected with the first end of the curved edge section tangentially, wherein glue or a weld connects at least one section of the common wall section to the

peripheral wall, and wherein the curved edge section has a second end that merges into an essentially horizontal lid bottom middle section.

26. (Previously Presented) A filter cartridge with a filter material, comprising:  
a cartridge container with a bottom wall and a peripheral wall and a lid, which shuts the cartridge container, comprised of a lid bottom and a strip-shaped lateral wall having a length measured parallel to the peripheral wall and having a linear vertical cross section along the entire length of the lateral wall, wherein the lateral wall is fitted at the inner side of the peripheral wall and the lateral wall is in contact with the peripheral wall along the entire length of the lateral wall, wherein the lid bottom merges with the lateral wall in the direction of the peripheral wall along an inward curved edge section, wherein the curved edge section and the lateral wall join in a common wall section, tapering inwards, in a forming region, wherein a lower end of the common wall section is parallel to the cartridge container peripheral wall adjacent thereto, and wherein the lateral wall has an upper wall section which is connected to and extends upward from the common wall section that is parallel to the common wall section lower end and cartridge container peripheral wall adjacent thereto, and wherein the curved edge section consists of a single curved portion having a radius of curvature  $R$ , wherein glue or a weld connects at least one section of the common wall section to the peripheral wall, and wherein the curved edge section has an essentially vertical section at one end in an area of the common wall section and immediately merges into an essentially horizontal lid bottom middle section at a second end.

27. (Previously Presented) The filter cartridge according to claim 1, wherein the curved edge section has an essentially vertical section at one end in an area of the common wall section.

28. (Previously Presented) The filter cartridge according to claim 25, wherein the curved edge section has an essentially vertical section at one end in an area of the common wall section.

29. (Canceled)

## Evidence Appendix

Not Applicable.

Related Proceedings Appendix

Not Applicable.

Respectfully submitted

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A handwritten signature in cursive script, appearing to read "Daniel J. Hudak, Jr.", written in dark ink.

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